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SIGNIFICANT RESULTS REPORT

September 28, 1973

Category: 3-Mineral Resources, Geological Structure and Land Form
Surveys

Sub-Category: L-Mine Safety, Hazard Survey, and Disaster Assessment

Title: Study of Application of ERTS-A Imagery to Fracture-Related
Mine Safety Hazards in the Coal Mining Industry (NAS5-21795)

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Co-Investigator: Dr. Frank J. Wobber, Mr. Orville R. Russell and
Mr. Kenneth R. Martin

Mined land reclamation analysis procedures developed within the Indiana portion of the Illinois Coal Basin were independently tested in Ohio utilizing 1:80,000 scale enlargements of ERTS image 1029-15361-7 (dated August 21, 1972). Rapid estimates of the degree of revegetation of mined lands were made based solely upon tonal variations to simulate use of ERTS imagery by state personnel with limited experience, and faced with changes unfamiliar to them.

An area in Belmont County was selected for analysis due to the extensive surface mining and the different degrees of reclamation occurring in this area. Contour mining in this area provided the opportunity to extend techniques developed for analysis of relatively flat mining areas in Indiana to areas of rolling topography in Ohio. The analysts had no previous experience in the area.

Field investigations largely confirmed office analysis results although in a few areas estimates of vegetation percentages were found to be too high. In one area this error approximated 25%. In no instances were the estimates found to be too low.

These results suggest that systematic ERTS analysis in combination with selective field sampling can provide reliable vegetation percentage estimates in excess of 25% accuracy with minimum equipment investment and training. The utility of ERTS for practical and reasonably reliable update of mined lands information for groups with budget limitations is suggested. Many states can benefit from low cost updates of mined lands information using ERTS imagery as supplied from public sources.

E73-11034) STUDY OF APPLICATION OF
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SAFETY HAZARDS IN THE COAL MINING
INDUSTRY Significant (Indiana Geological
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